

United States of America
Federal Communications Commission
Washington, D.C. 20554

For Commission Use Only

File No.

**Application for Authority to Construct or Make Changes in an International
or Experimental Broadcast Station**

Section I

(Carefully read instructions before filling out Form—RETURN ONLY FORM TO FCC)

1. Name of Applicant (See Instruction D)

Street Address (24 characters)

World International Broadcasters, Inc.

P.O. Box 88

City (20 characters)

State

ZIP Code

Telephone No.
(Include Area Code)

Red Lion

PA

17356

(717) 244-5360

2. Name of person to whom communication should be sent if different from Item 1 above.

Name

Street Address

City

State

ZIP Code

Telephone No.
(Include Area Code)

()

3. Purpose of Application (Check appropriate boxes)

(a) Application is for: ☐ New Station ☒ Change in existing authorization

☐ Major

☒ Minor

(b) If this application is for a change in existing facilities, complete Section I plus any other Sections necessary to show all substantial changes in information previously filed with the Commission. Indicate below the Sections completed and filed with this application.

☐ Section II

☐ Section III

☐ Section IV

☒ Section V

☐ Section VG

☐ Section VI

(c) In the space below refer to information already on file with the Commission which, in accordance with Instruction E, may be incorporated in this application by proper reference.

File or Form No. and Date	Section No.	Paragraph No.
BPIB-81 Granted 7/3/1962	Sections III, IV, and VG	All
BPIB-81 Granted 7/3/1962	Section V	3,4,6,7
IHF-RWL-20130315-00001; 3/15/2013	Section VI	All
No changes have been made to antenna system since the date of filing.		

4. Requested Facilities

Frequency

Antenna Input Power 10KW

Hours of Operation

Seasonally
as authorized

Call Sign WINB
(If application is for an
existing station)

(not applicable to international stations)

Type of Station: ☒ International ☐ Experimental television ☐ Experimental facsimile

☐ Developmental broadcast station

Location of Main Studio

Street Address

City

State

ZIP Code

2870 Windsor Road

Windsor Twp.

Pennsylvania

17366

Note: recent address number change of studio location by local post office

FCC 309
April 1985

Section I (page 2)

Application for facilities other than international broadcast stations signify their understanding that:

- (1) All operation upon the frequency requested is for experimental purposes only;
- (2) The frequency requested may not be the best suited to the particular experimental work to be carried on;
- (3) The frequency requested may not be allocated for any service that may be developed as a result of the experimental operation;
- (4) Any frequency which may be assigned is subject to change without prior notice or right to hearing; and
- (5) Any authorization issued pursuant to the application may be modified or withdrawn at any time without prior notice or right to hearing.

The Applicant hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934.)

The Applicant represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

The Applicant acknowledges that all the statements made in this application and attached exhibits are considered material representations, and that all the exhibits are a material part hereof and are incorporated herein as if set out in full in the application.

Certification

I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Signed and dated this 13th day of November, 2017

**WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE
PUNISHABLE BY FINE AND IMPRISONMENT. U.S. CODE,
TITLE 18, SECTION 1001.**

World International Broadcasters, Inc.

BY Frederick W. Wise, PE
(Signature)

TITLE President

Exhibits furnished as required by this form:

Exhibit No.	Para. No. of Form	Name of officer or employee (1) by whom or (2) under whose direction exhibit was prepared (show which)	Official Title
Exhibit 1	Section V.5	Frederick W. Wise, P.E.	President

Section V

ENGINEERING DATA			NAME OF APPLICANT World International Broadcasters, Inc.	
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1. Purpose of authorization applied for: (Put "X" in appropriate box)

☐ Construct a new station

☒ Modify an existing authorization (Specify)

2. Facilities requested

FREQUENCY ¹	POWER ²	NECESSARY BANDWIDTH (KHZ)	TYPE OF EMISSION ³
	10KW DRM	10kHz	DRM10K009W

¹ International Broadcast Station applicants need not specify frequency.

² For amplitude modulation television (AS), give maximum antenna input power during synchronizing pulses. If particulars are not fully described above, such as aural and visual carrier frequencies and power for television and type of emission, etc., supply this information as Exhibit No. _____. Developmental stations using amplitude modulation or frequency modulation, give unmodulated antenna input power. For other types of emission, give a full description of method of determining power as Exhibit No. _____. Describe in Exhibit No. _____ the means which will be used for determining and maintaining power output of the transmitter to the values specified.

³ See Part 2 of the Commission's Rules and Regulations.

3. Proposed transmitter location			7. (a) Antenna structure										
STATE	COUNTY	CITY	Is the proposed construction in the immediate vicinity or does it serve to modify the construction of any AM broadcast station, FM broadcast station, television broadcast station, or other class of radio station? <div style="text-align: right;"><input type="checkbox"/> YES <input type="checkbox"/> NO</div> If "Yes", attach as EXHIBIT No. _____ complete engineering data thereon. Submit as EXHIBIT No. _____ a vertical plan sketch for the proposed total structure (including supporting buildings, if any) giving heights above ground in feet for all significant features. <div style="display: flex;"> <div style="flex: 1;"> Over-all height in feet above ground. (Do not include the height of any obstruction lighting which may be required.) </div> <div style="flex: 1;"> Over-all height in feet above mean sea level. (Do not include the height of any obstruction lighting which may be required.) </div> </div>										
Number and Street (or other indication of location)													
Geographic coordinates (to be determined to nearest second) of the proposed antenna structure													
NORTH LATITUDE		WEST LONGITUDE											
4. Attach as EXHIBIT No. _____ a map(s) (topographic where obtainable, such as U.S. Geological Survey quadrangles) for the area within 15 miles of the proposed transmitter location and show drawn thereon the following data: 1. Proposed transmitter location—accurately plotted. 2. Transmitter location and call signs of all known radio stations (except amateur) and the location of known commercial and government receiving stations within 2 miles of the proposed transmitter location.			(b) Antenna data NOTE: Applicants for international broadcasting stations should submit all pertinent data regarding antenna characteristics in accordance with the requirements of the International Telecommunication Union's Radio Regulations. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">MAKE</th> <th style="width: 50%;">TYPE NO. OR DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		MAKE	TYPE NO. OR DESCRIPTION							
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5. Transmitting apparatus to be installed <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">MANUFACTURER</th> <th style="width: 50%;">TYPE NO.</th> </tr> </thead> <tbody> <tr> <td>Amplifier Systems, Inc.</td> <td>CE-50000WS-HF</td> </tr> </tbody> </table> Rated Unmodulated Carrier Power Output 15kW average, 50kW PEP <i>(If the above transmitter(s) is/are composite or of a type for which data has not been filed with the F.C.C., attach as EXHIBIT No. _____ a complete technical description of the transmitter(s) and auxiliary equipment with functional (block) diagrams indicating tube complements and the operating constants of the last radio stage. Include also auxiliary radio frequency equipment such as multiplexing networks, sideband filters, etc. If experimental program is likely to make major changes necessary, indicate the tentative arrangement contemplated indicating those portions which are subject to change.)</i>			MANUFACTURER	TYPE NO.	Amplifier Systems, Inc.	CE-50000WS-HF	NUMBER OF SECTIONS ANTENNA POWER GAIN (c) During course of experimentation, will antenna system be changed? <div style="text-align: right;"><input type="checkbox"/> YES <input type="checkbox"/> NO</div> If "Yes", attach EXHIBIT No. _____ the changes or modifications contemplated. (d) Is directional antenna proposed? If "Yes", attach as EXHIBIT No. _____ complete engineering data thereon. <input type="checkbox"/> YES <input type="checkbox"/> NO						
MANUFACTURER	TYPE NO.												
Amplifier Systems, Inc.	CE-50000WS-HF												
6. Transmission line proposed to supply power to the antenna from the transmitter <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">MAKE</th> <th style="width: 25%;">TYPE NO.</th> <th style="width: 50%;">DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			MAKE	TYPE NO.	DESCRIPTION							8. Frequency or percentage of modulation measurement. (a) Method of measuring or monitoring station frequency. Frequency Counter - NBS referenced (b) Method of measuring or monitoring station modulation. Software Defined Digital Modulation Monitor	
MAKE	TYPE NO.	DESCRIPTION											
SIZE IN INCHES (nominal inside transverse dimension) LENGTH IN FEET Rated efficiency in percent for this length			9. Environmental Statement, See Part 1, Subpart I of the rules. Would a Commission grant of your application be a major action as defined by Section 1.1305 of the Commission's rules? If "Yes", attach as EXHIBIT No. _____ the required statement in accordance with Section 1.1311 of the rules. If "No", explain briefly. <div style="text-align: right;"><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</div>										

Exhibit 1
Application for Authority to Construct or make Changes In
an International or Experimental Broadcast Station

Section V.

5. Transmitter apparatus to be installed

Exhibit number 1 provides a description of the Modulator(s), High Power RF Linear Amplifier, and balun transformer which form the DRM transmitting apparatus to be installed as part of the requested modification to the WINB authorization. This amplifier with driving software will be installed in addition to the existing Continental 417B transmitter. The existing Continental transmitter will be used during those time periods when AM emissions are authorized. The proposed new DRM transmitter will be employed when DRM emissions are authorized. Because WINB has only one antenna simultaneous operation is not possible.

Figure 1 - DRM Transmitting Apparatus Functional Block Diagram includes the tube compliments and operating constants of the last radio stage which is contained in the Amplifier Systems Inc. CE-50000WS-HF Linear Amplifier.

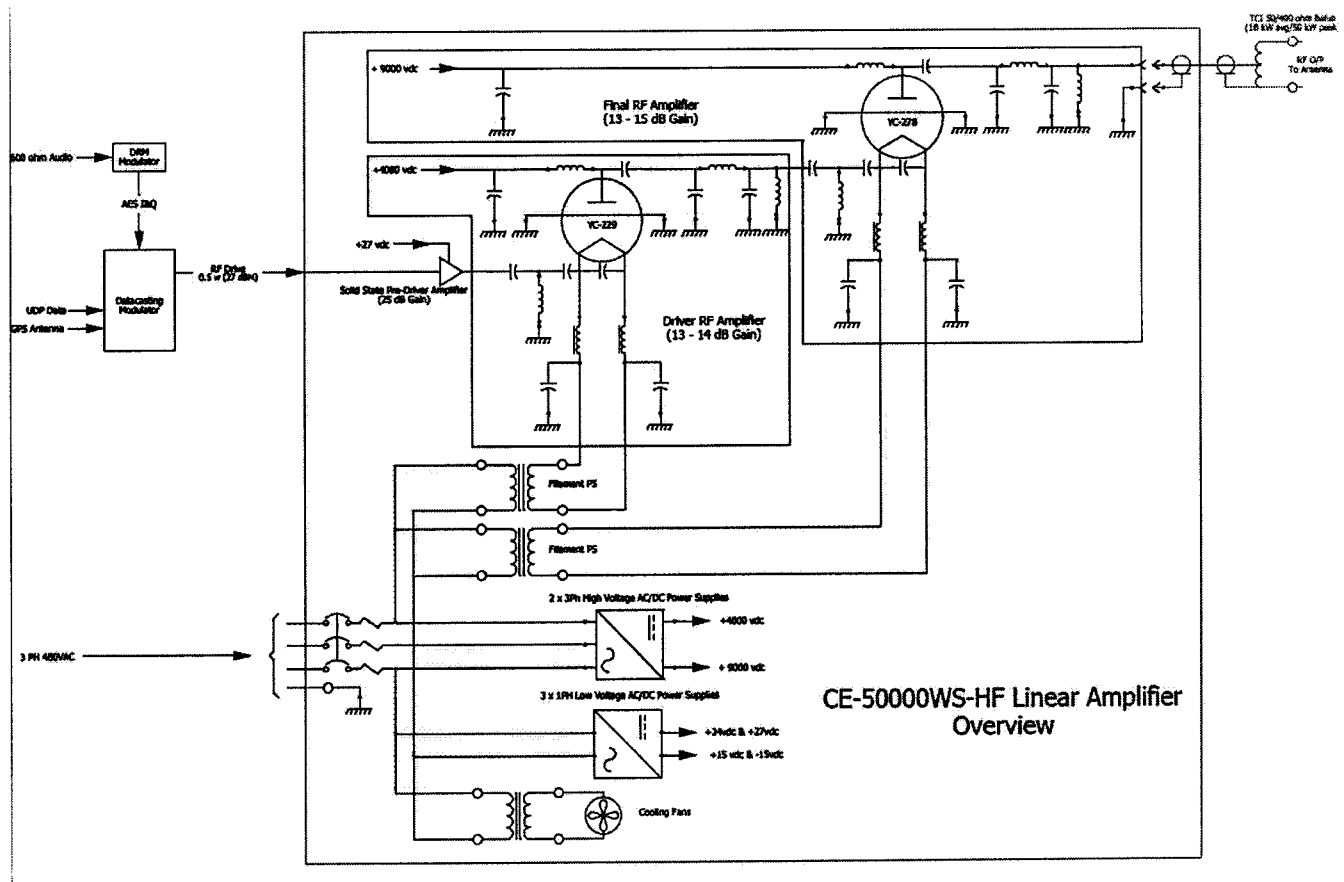


Figure 1 – DRM Transmitting Apparatus Functional Block Diagram

DRM Modulator

The DRM Modulator consists of three rack mount assemblies, the audio analog to digital converter (RFmondial GMBH Livewire Audio Node RF-LW), the DRM Content Server (RFmondial DRM30 Content Server) and the DRM Modulator (RFmondial GMBH Modulator LVDRM30).

Analog audio from the station audio source is connected to the analog to digital converter where it is digitized and streamed using the Livewire standard to the Content Server over the Local Area Network (LAN). The Content Server compresses the audio information using the AAC audio coding process and transmits the audio to the DRM modulator per the Multiplex Distribution Interface (MDI) standard over the LAN.

The DRM Modulator processes the incoming encoded audio data and produces a digital OFDM signal containing the aural component of the broadcast. This signal is transmitted to the Datacasting Modulator in a digital baseband format using the AES3 standard.

Datacasting Modulator

The Datacasting Modulator accepts incoming data packets over the LAN and produces a drive signal consisting of an OFDM signal carrying the aural component and the datacasting component with a total bandwidth of 10 kHz. The Datacasting Modulator digitally upconverts the drive signal to the broadcast frequency and produces the analog radio frequency drive signal for the high power amplifier stage at a power level of approximately 50 mW.

For more information refer to:

ITU Recommendation: System for digital sound broadcasting in the broadcasting bands below 30 MHz ITU-R BS.1514-2

ETSI Standards:

Multiplex Distribution Interface (MDI): ETSI TS 102 820

DRM System Specification: ETSI ES 201 980 V4.1.1

High Power RF Linear Amplifier

CE-50000WS-HF High Power RF Linear Amplifier is designed around the rugged YC-229 and YC-278 ceramic triodes. CE-50000WS-HF employs a grounded grid circuit to ensure simplicity of design and years of reliable operation. The amplifier is completely self-contained and uses only the highest quality RF and DC components available today.

The CE-50000WS-HF uses a YC-229 (Driver) and a YC-278 (Final) in conjunction with a special high voltage, heavy-duty power supply for a minimum of 15000 watts CW and 50000 watts PEP output for commercial applications.

Step-start system is provided to protect against the initial inrush current of the high voltage circuit.

CE-50000WS-HF SPECIFICATIONS

TYPE AND FUNCTION OF EQUIPMENT

CE-50000WS-HF is a single cabinet (double shielded) High Power RF linear power amplifier, operating in the 5 – 20 MHz frequency range. It can be used for communications, industrial, or scientific applications.

OUTPUT POWER

15000 watts average, 50000 watts PEP.

GAIN

50 dB minimum.

TUBE COMPLEMENT

YC-229 (Driver), YC-278 (Final).

COOLING

Forced air cooling.

POWER REQUIREMENTS

4 wire, three phase, 480 V AC +/-10%, 60 Hz.

FREQUENCY

5 – 20 MHz nominal.

OUTPUT IMPEDANCE

50 ohms unbalanced with SWR not to exceed 2:1.

INPUT IMPEDANCE

50 ohms unbalanced.

METERING

Two panel meters monitor forward/reflected power of the predriver. Five panel meters monitor plate voltage, plate current, grid current and forward/reflected power of the driver amplifier. Six panel meters monitor plate voltage, plate current, grid current, filament voltage and forward/reflected power of the final amplifier.

PROTECTION

Circuit breaker on/off switch, primary fuses, high voltage fuses, door switch, over current, over VSWR, air flow.

REAR CONNECTORS

RF input (N(F) type connector), RF output (1-5/8EIA connector).

PLATE VOLTAGE

4000 V DC nominal (Driver), 9000 V DC nominal (Final).

NOTE: The plate voltages listed above are nominal and vary with the AC line voltage at the operating position.

MONITOR AND REMOTE CONTROL

Located at TB1.

OTHER FEATURES

Conservative power supply components for superb dynamic regulation in the high voltage supply.

Oil filled capacitors to improve H.V. regulation.

Heavy-duty semiconductor diode rectifiers for reliable operation.

Double shielding in the RF section for minimum cabinet radiation. Step-start system protects the H.V. circuit.

Genuine Bird line section and plugs for accurate power reading.

The driver and the final amplifier are independently able to activate the high voltage (to OPERATE). Both stages have high voltage fuses and if either fuse has blown, the DC supply of the predriver is turned off for the protection of the further stage(s).

Balun Transformer

The 50 ohm output impedance of the CE-50000WS-HF High Power RF Linear Amplifier is matched closely to the characteristic impedance of the broadcast antenna system by using a 50 ohm to 400 ohm TCI Balun Transformer. This allows the VSWR applied at the output of the CE-50000WS-HF High Power RF Linear Amplifier to be maintained well within the 2:1 maximum SWR specification of the CE-50000WS-HF High Power RF Linear Amplifier.

Antenna Feeder Matching and Switching

The existing WINB Rhombic antenna and the feed line to the antenna have a nominal characteristic impedance of 600 Ohms. Impedance measurements made on the feed line in the transmitter building indicate a match much better than the 2:1 that the transmitter is rated for.

A double-pole, double-throw high voltage vacuum contactor assembly will be installed to switch the transmitters to the antenna feed line.